ESReDA Project Group on
Critical Infrastructure Preparedness and Resilience:
Data for Modelling, Simulation & Analysis
CI-PR / MS&A-Data

mohamed.eid@cea.fr

http://www.esreda.org/

Subject : Critical Infrastructures Preparedness and Resilience (CI-PR) - Data for Modeling, Simulation and Analysis [CI-PR/Data for MS&A]

Since the eightieth, the CIP thematic is gaining a growing interest from both scientific/technical communities and political/civil stakeholders. In the most developed countries, national programs are flourishing and funded by the states and the industry.

Although, the term "Critical Infrastructures" is not yet definitively fixed up, it is obvious that the term targets at systems of different kinds, territorially distributed and interconnected (functionally and physically). A set of critical infrastructures could be different between two standpoint of views: electrical energy utilities, coast guard authorities, telecommunication operators…

Critical infrastructures are heterogeneous, distributed, interconnected and interdependent. Failures may propagate in cascade. The failures and their consequences, then, propagate and may be amplified during propagation. The failure modes, mechanisms and effects are not always well described and failure data are almost inexistent. Failures and their consequences are not only functions of the concerned systems but also of the implied threats.

Failures propagation and consequences amplification would under some specific conditions result in serious crisis.

ESReDA should be amongst the principal actors investigating and contributing into the definition of the necessary R&D activities in order to design and operate robust and resilient CI and to better manage resultant crisis.

Title of the ESReDA-PG: Critical Infrastructures Preparedness & Resilience - Data for Modelling, Simulation & Analysis (CI-PR/MS&A-Data)

Target

The project group "CI-PR/MS&A-Data" will establish a comprehensive technical document on the existing Data and models that have been developed and are used in the fields of the CIP. Establishing a comprehensive state-of-the-art may hopefully lead to identifying lacks and measures to complete lacking data or lacking organisation to acquire data.

This technical document will be published with a EUR Tech-Doc reference number.

Technical Description

The project will be divided into tasks defined as: The emergence of the concept "Critical Infrastructures" (T1), Major crises involving CI's (T2), DB and available data (T3), Existing models & tools (T4), Assessment of the state-of-the-art (T5), Synthesis & Conclusions (T6).

The connecting line in these 6 tasks is the relevant Data, in the sense: type of data, availability, accessibility, validation, structures/organisations of the data and acquisition and treatment.

The starting point (T1) is an introductory task focusing on the emergence of the concept of the Critical Infrastructures (CI). The task will put the light on the pioneering works and original concerns in the field of the CI Preparedness & Resilience (CI-PR). The existing data and the major needs in data will be tentatively identified. The types of data concerned in this task are: basic CI concepts and definitions, governmental directives, conclusions and recommendations issued from experts' meeting and concerned networks, …

The 2nd task (T2) will scan some major crises involving CI that are considered as land-marks in the development of the awareness of the decision makers and the civil societies. A sort of descriptive sheet will be established for each crisis.

The 3rd task (T3) will establish the inventory of the existing databases that are oriented CI-PR. A technical sheet will be established for each. A specific intention will be paid to the EU case. The corresponding data and their structure will equally be described. Focusing will be on the state of data that are necessary to model and simulate dependencies and interdependencies. Data here may be: failures, reparations, diagnostics, prognostics, aging, geo-physics, demographic distributions, …

The 4th task (T4) will establish the inventory of the existing models and codes that are used in CIP activities. A technical sheet will be established for each. A specific intention will be paid to the EU case. The corresponding validation activities and studies will be identified, when possible.

The assessment of the state-of-the-art, T5, will aim at assessing for the data and for the models & codes: the fields of application, the spread and the complexity. T5 will assess also the satisfaction of the major needs in the field of the CIP. The unsatisfied needs will be identified and if possible ranked according to their degree of non-satisfaction and their criticality.

In task 6 (T6) an overall synthesis and conclusions will be drawn in order to enable major actors in the CIP field to identify: the real state-of-the-art in data and models, the unsatisfied needs and the criticality of the unsatisfied needs. It may draw some directions for future R&D activities in data and models development.

Project Organization

ESReDA's project-groups creation is possible when 4 ESReDA valid members (at least) propos its creation and receive the support of the Board of Directors and the approval of ESReDA's General Assembly. An ESReDA project group is created for 3-4 years. The project is led by one of the founding members.

Having been created, the project group calls for EU-experts contributions and forms the project group PG.

The PG elaborates within its first meetings: the working plan, the structure of the technical report and the activities sharing.

Aside the project leadership that is restricted to one of ESReDA founding members, the other responsibilities sharing is unrestricted. The project will be divided into tasks and subtasks and managing responsibilities will be shared between the members without distinguishing between ESReDA and non-ESReDA members.

Financial aspects

The approval of ESReDA General Assemble for the creation of a project group (3-4 years) implies the allocation of an annual subvention (= 5-7 k€) for the operation of the new project group.

The financial support is dictated to facilitate the PG running and it is use is decided collegially within the respect of ESReDA's internal rules.

Products

ESReDA PG produces technical reports that are commercially published and distributed. The choice of the publisher is decided inside the PG. ESReDA Board of Directors (BoD) may suggest a publisher if the PG demands. Each experts participating in the PG will receive a free copy of the published report for free (ESReDA member or not).

ESReDA PG is equally invited to organize 1-2 ESReDA's seminars in order to disseminate their and collect additional expertise. ESReDA seminars are semi-annuals and scheduled over 2-3 days. The

proceedings of the ESReDA seminars are registered as EU-Tech Doc and are published and freely distributed by EC-JRC/Ispra.

Starting-Ending Dates

1st Meeting of ESReDA-PG on CIP, 14:00-15:30, 29/05/14, Room. The tentative ending date is end of 2017.

List of confirmed members on 29/05 (05/2014)

#	Nom	affiliation	Country	ESReDA	mail
1	Philippe Aubert	EC – FPI	BE		Philippe.AUBERT@ec.europa.eu
2	Alaa Chateauneuf	Un. De Clermont	FR	Y	alaa.chateauneuf@polytech.univ-bpclermont.fr
3	Nicolas Dechy	IRSN	FR	Y	nicolas.dechy@irsn.fr
4	Mohamed Eid	CEA	FR	Y	Mohamed.eid@cea.fr
5	Luis Ferreira	Un. Of Porto	PT	Y	lferreir@fe.up.pt
6	Jeevan Jyoti	Alstom-Power	IN	Y	jeevan.jyoti@power.alstom.com
7	Kortner Kortner	Safetec	NO	Y	Henrik.Kortner@safetec.no
8	André Lanoy	IMdR	FR	Y	andre.lannoy@orange.fr
9	Alessandro Lazari	EC JRC/Ispra	IT	Y	alessandro.lazari@jrc.ec.europa.eu
10	Roberto Setola	Un. Di Roma	IT	N	r.setola@unicampus.it
11	Vittorio Rosato	ENEA	IT	N	vittorio.rosato@enea.it
12	Luísa Pestana	EDP	PT	Y	MariaLuisa.Pestana@edp.pt
13	Ricardo Messias	EDP	PT	Y	ricardo.messias@edp.pt
14	Antonio Sola	Telefonica	ES	Y	*asrasrasr@telefonica.net*
15	John Stoop	Kindunos	NL	Y	stoop@kindunos.nl
16	Marianthi Theocharidou	EC JRC / Ispra	IT	Y	marianthi.theocharidou@jrc.ec.europa.eu
17	Nikitas Nikitakos	Un. of Aegean	GR	N	nnik@aegean.gr
18	Samira Shafie	Vattenfall	SE	Y	samira.shafie@vattenfall.com
19	Micaela Demichela	Polit. Di Torino	IT	Y	micaela.demichela@polito.it
20	Marco Tesei	Un. Di Roma	IT	N	m.testei@unicampus.it
21	Simona Mancini		IT	N	d012586@polito.it
22	Dimos Charmpis	University of Cyprus	CY	N	charmpis@ucy.ac.cy
23	Miroslav Sykora		CZ	N	miroslav.sykora@klok.cvut.cz
24	Eric van kleev	van Kleef Consultancy	NL	N	eric@vankleefconsultancy.nl
25	Mohammad Raza	ALSTOM – Power	CH	Y	mohamma.raza@power.alstom.com
26	Alessandro de Stefano	Politecnico di Torino	IT	Y	alessandro.destefano@polito.it
27	Gintautas Dundulis	Lithuanian Eng. Inst.	LT	Y	gintas@mail.lei.lt
28	Inmaculada Castro	Extremadura Un.	SP	N	inmatorres@unex.es
29	Mauricio Sanchez-Silva	De los Andes Univ.	CO	N	msanchez@uniandes.edu.co
	Total			18/29	